

Presentation

Healthy development for children, and policy opportunities for intervention

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Background

1. Most common, disabling, & expensive health problems:

- Begin during childhood and adolescence
- Have behavioral, as well as genetic and environmental, causes
- Pattern according to socioeconomic status

2. Great! We can prevent them by improving kids' lifestyles.

- Many lifestyle interventions help kids initially
- But their benefits aren't sustained for very long
- Uptake & outcomes even worse in low-SES youth

So How Can We Do Better?

1. Recognize the persistent contextual stressors that low-income families face

Social

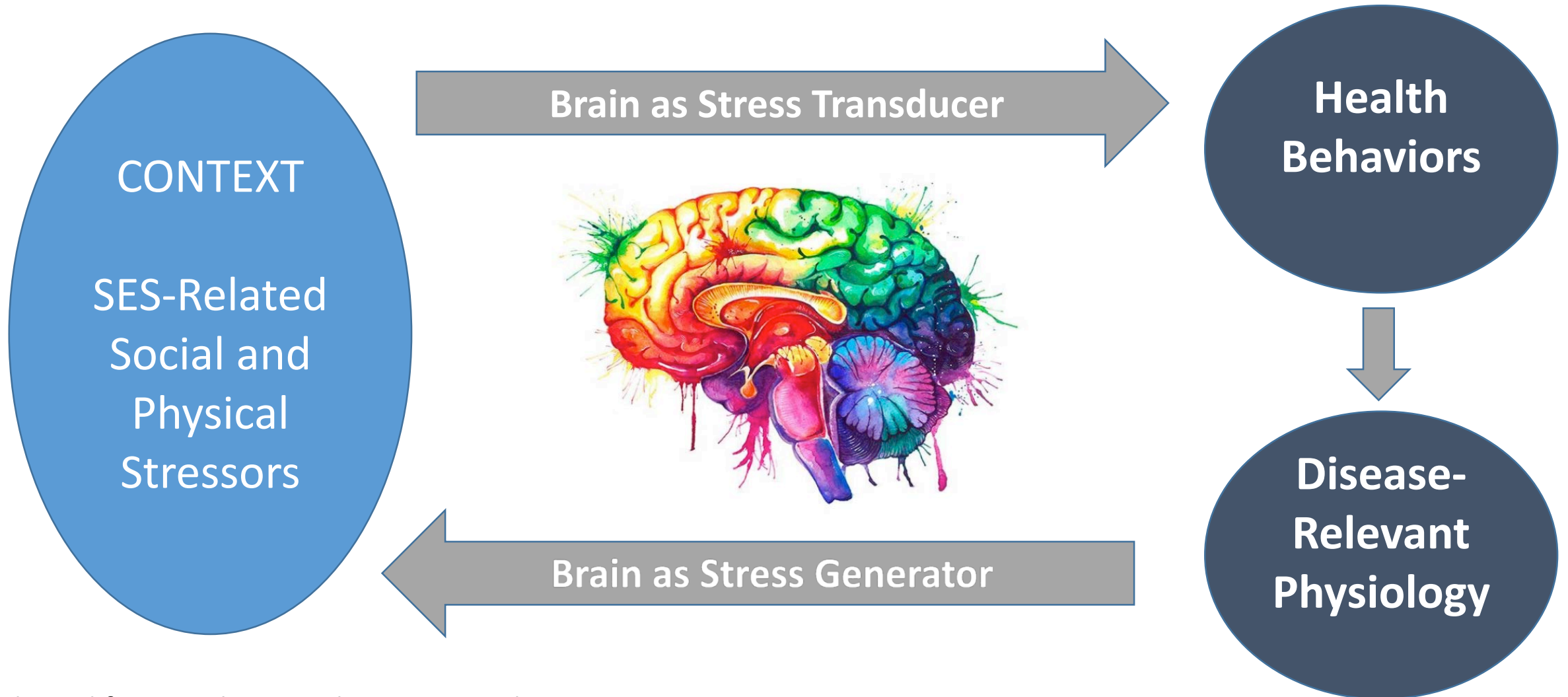
Family instability
Avail of nurturant caregiving
Neighborhood violence
Discrimination/
mistreatment
Material hardship/instability
Under-resourced schools

Physical

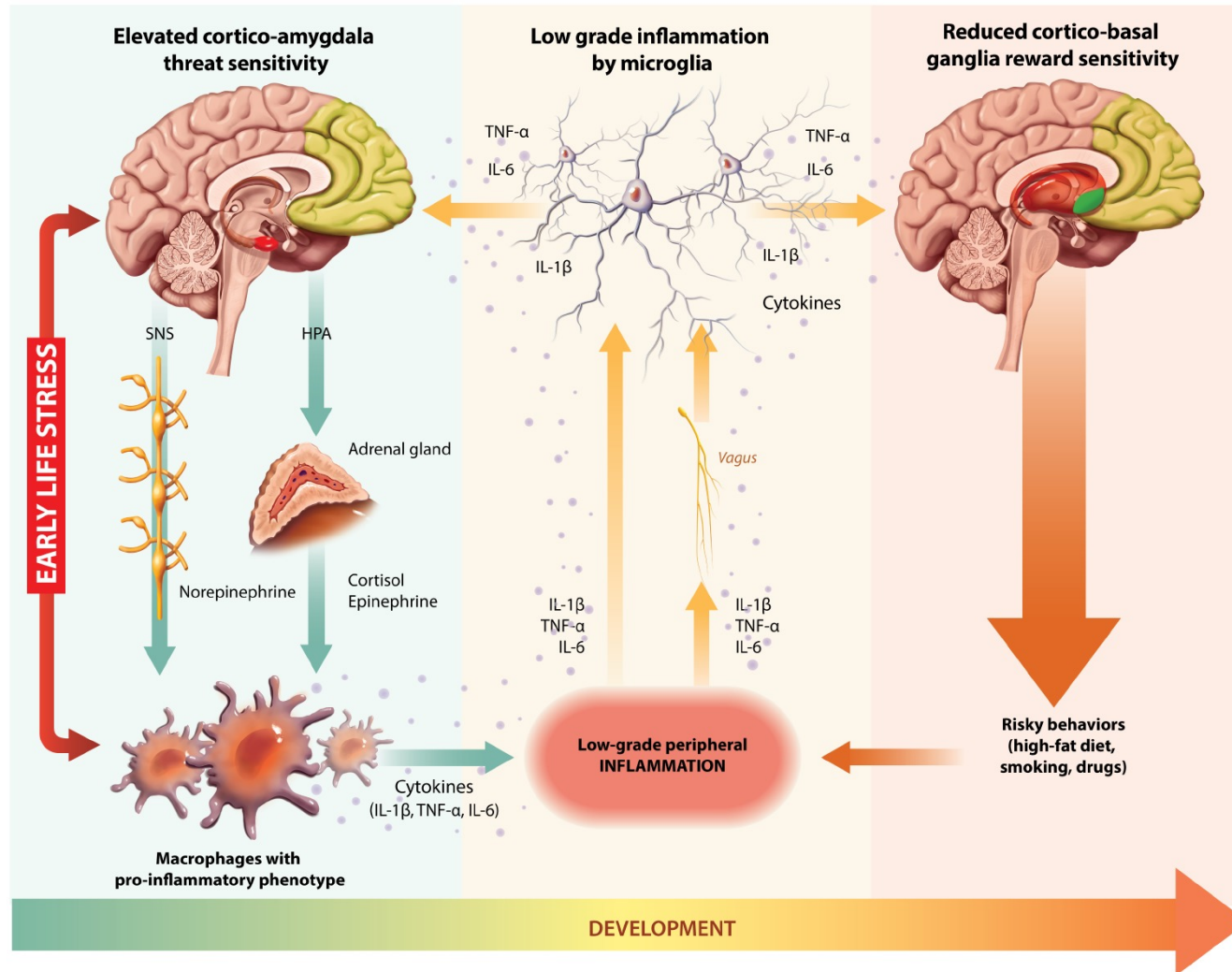
Access to healthy food
Safe places to exercise
Household toxicants
Availability of medical care
Residential segregation
Environmental pollutants

So How Can We Do Better?

2. Understand how those stressors affect brain development, and the downstream behavior and biology that drives disease



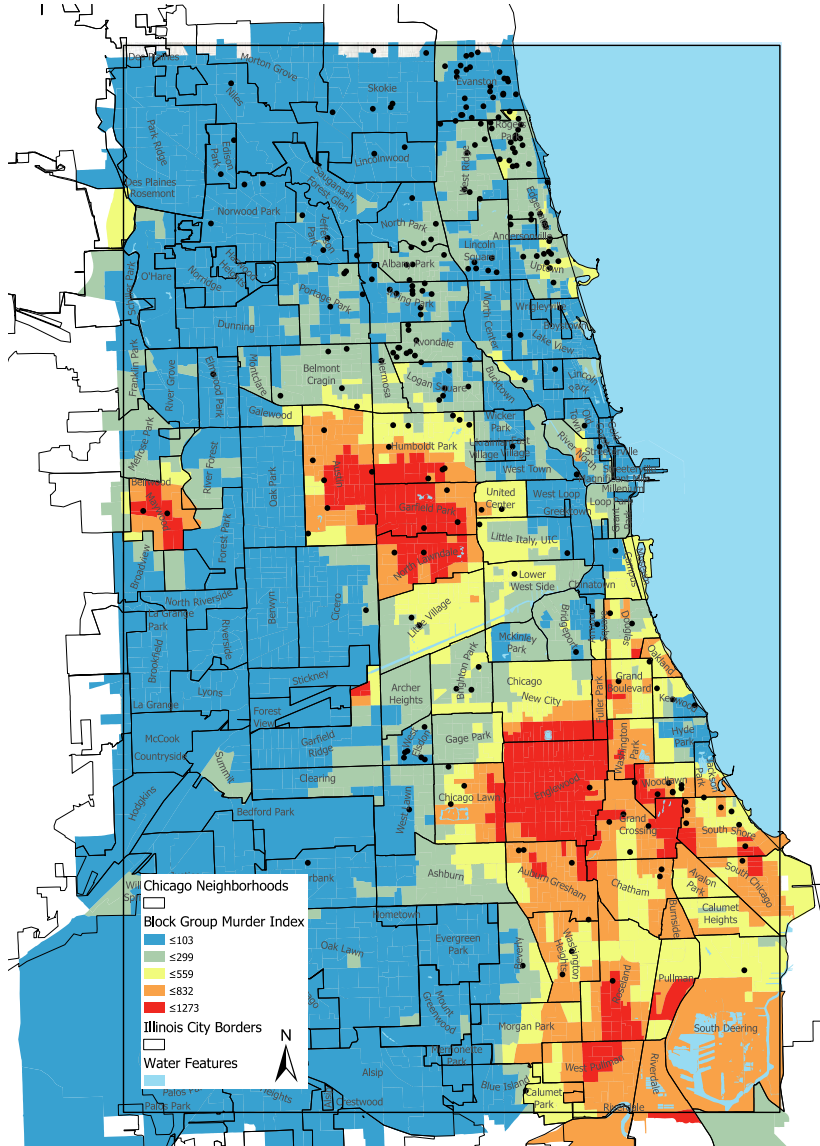
Some Key Networks, Interactions, Outputs



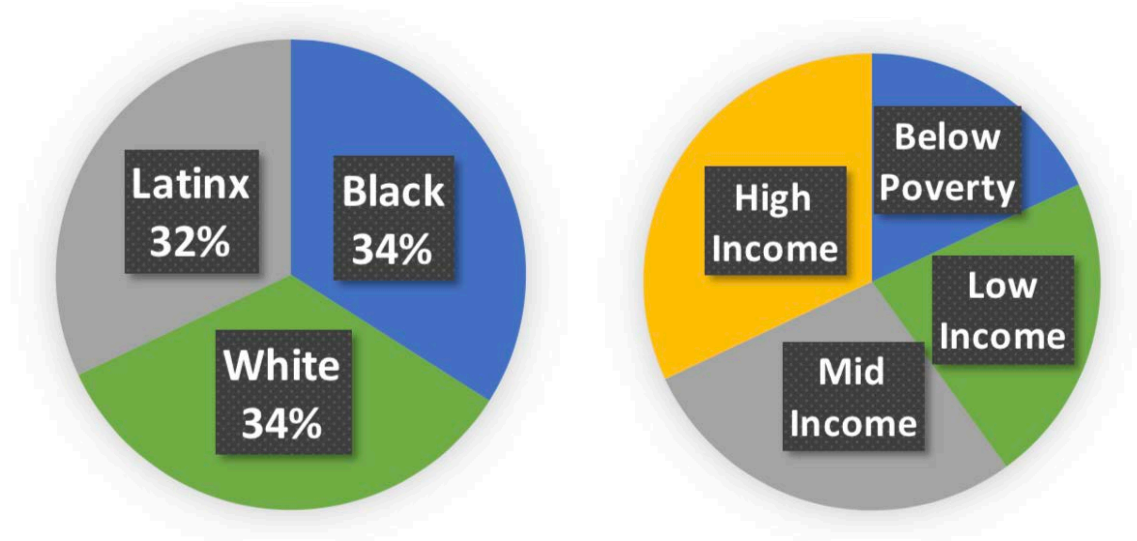
- Cortico-amygdala threat network and HPA/ANS outflow
- Cortico-striatal reward network and health behavior
- Bidirectional crosstalk with peripheral inflammatory signals

What This Looks Like Empirically

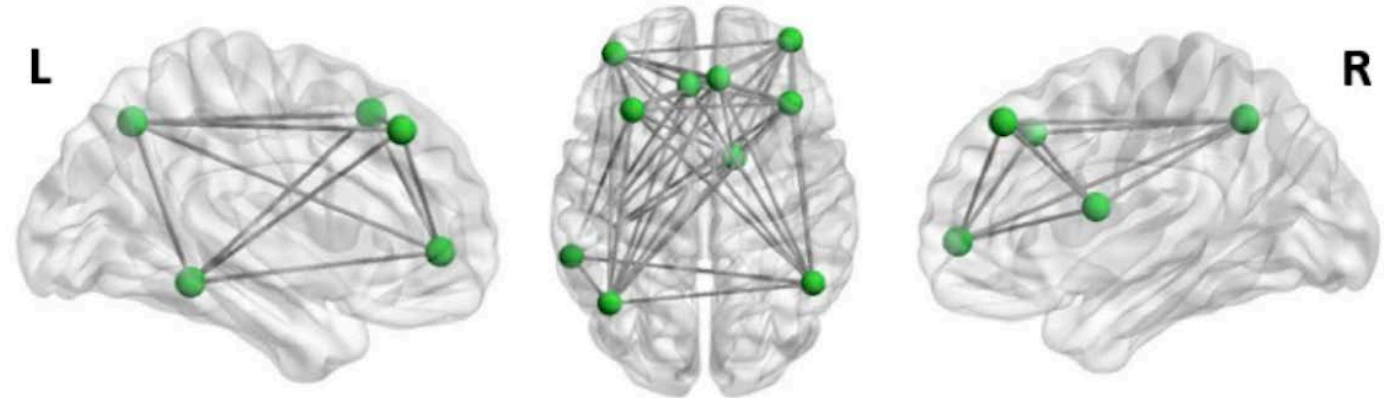
Neighborhood Murder 2010-14



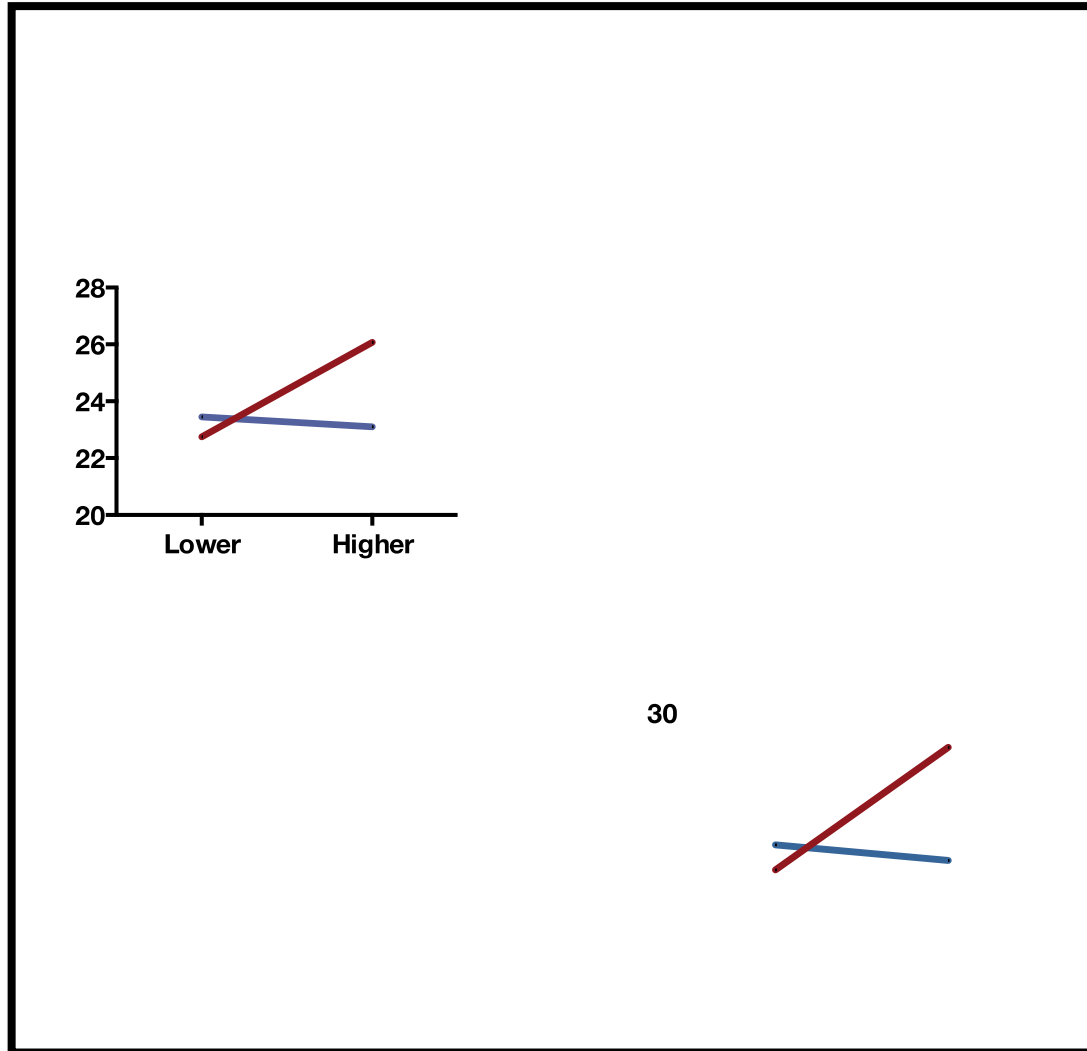
Sample



Central Executive Network



Violence, CEN rsFC, and Cardiometabolic Health



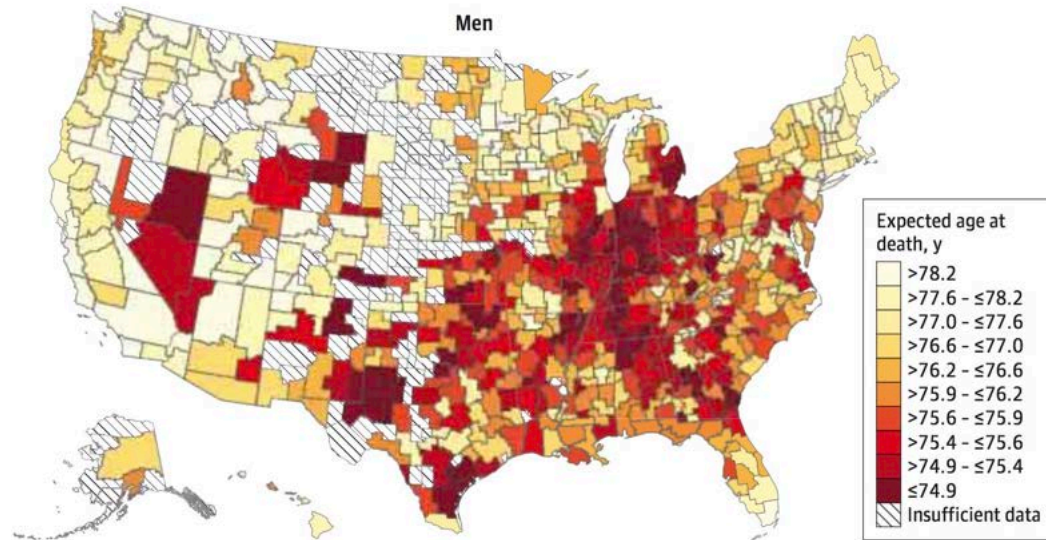
Metabolic Syndrome

- Abdominal adiposity
- Raised blood pressure
- Low HDL cholesterol
- Raised fasting glucose
- Raised triglycerides

Intervention with at-risk youth

CVD Belt in SE United States

A Life expectancy for bottom income quartile



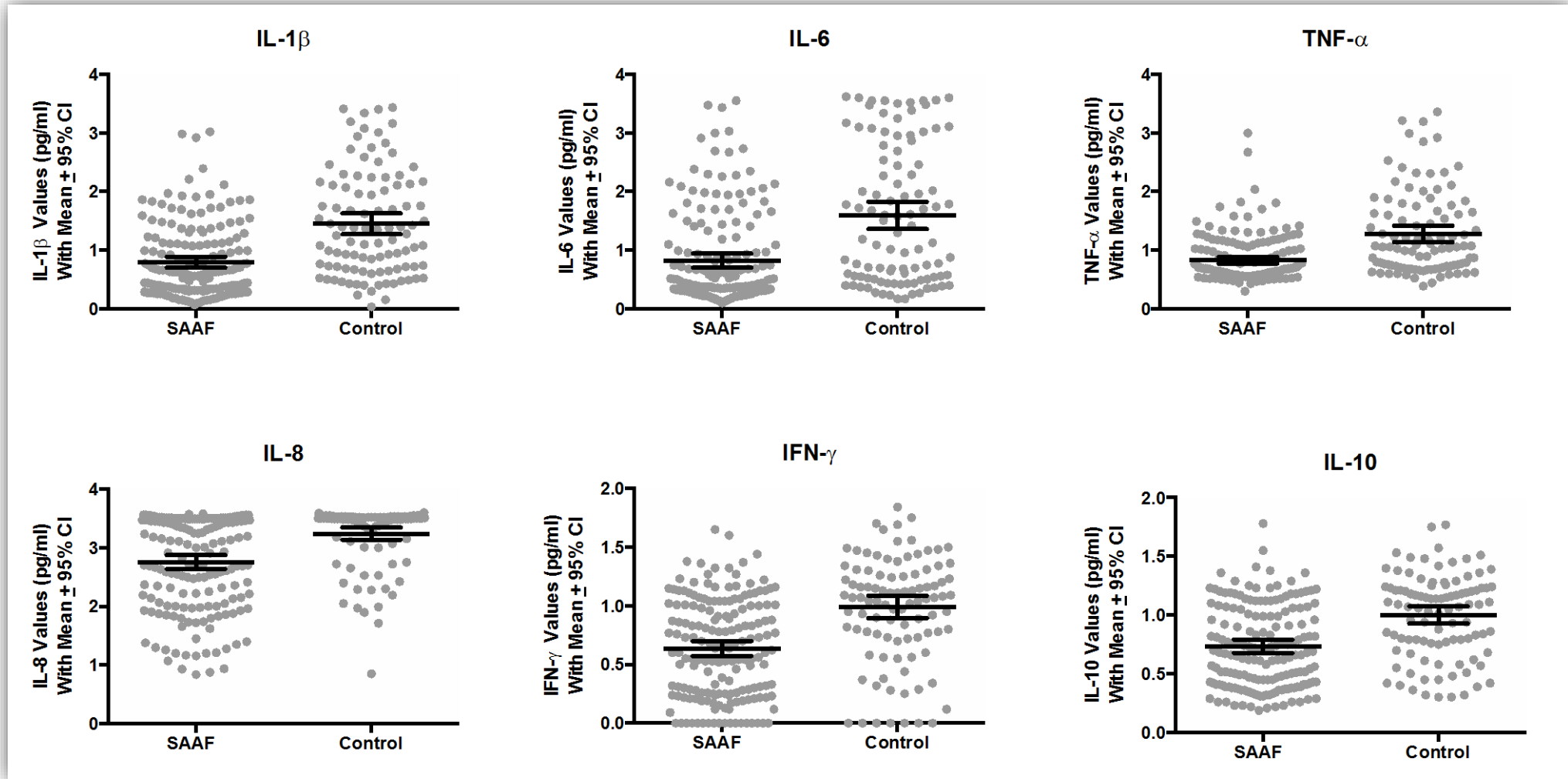
Characteristics of Sample

- 11 y-old Black youth from rural Georgia
- A caregiver, usually his/her mother
- 46% below federal poverty threshold
- < 10% parents have college degree
- 65% single-parent households

Strong African-American Families

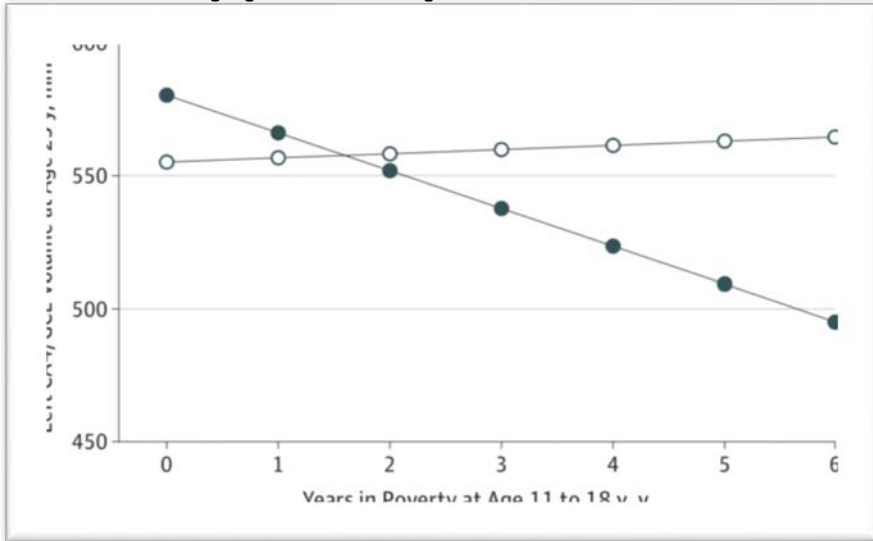
- 8 weekly sessions, two hours each
- Led by community facilitators
- Coping with adolescent transition
- And stressors around race/class
- Vigilant, supportive parenting
- Parent-child communication

Inflammatory Biomarkers, 19 Years

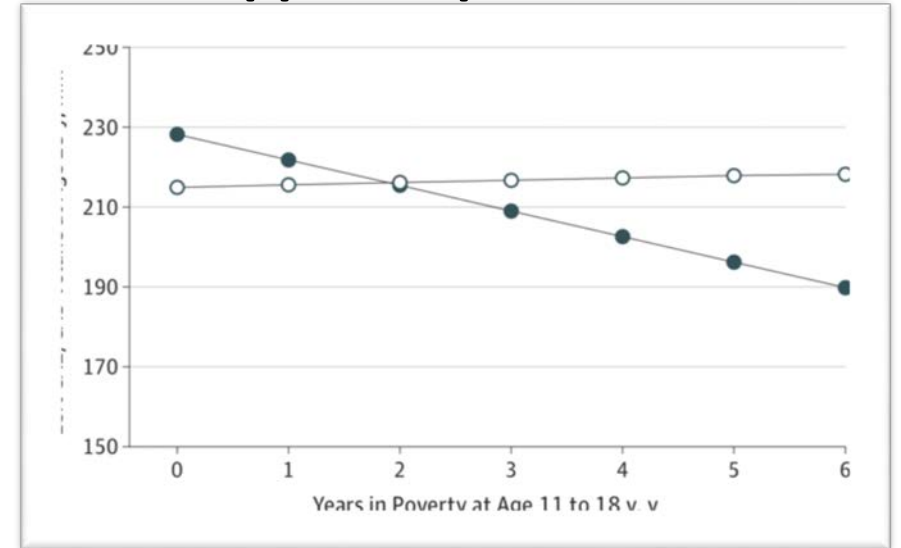


Amygdala and Hippocampal Volume, 25 Years

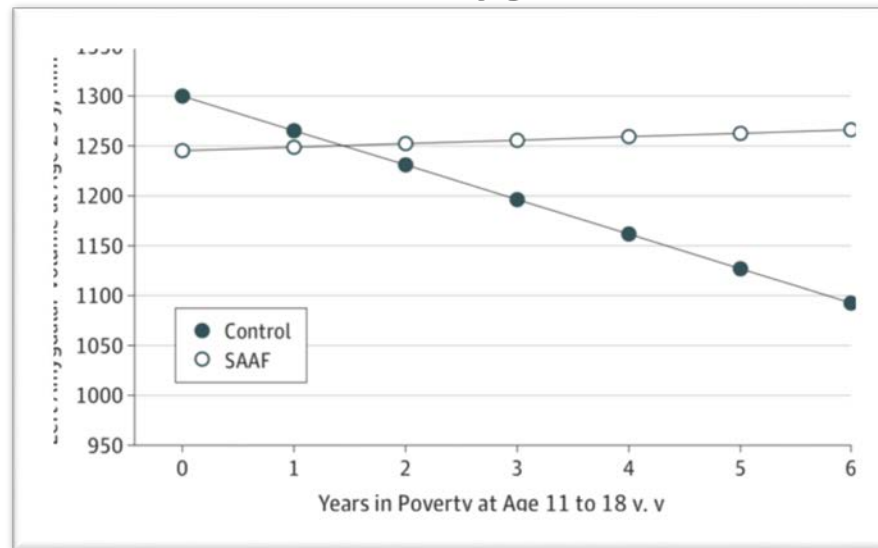
L Hippocampus – CA4/GCL



L Hippocampus – CA2/CA3

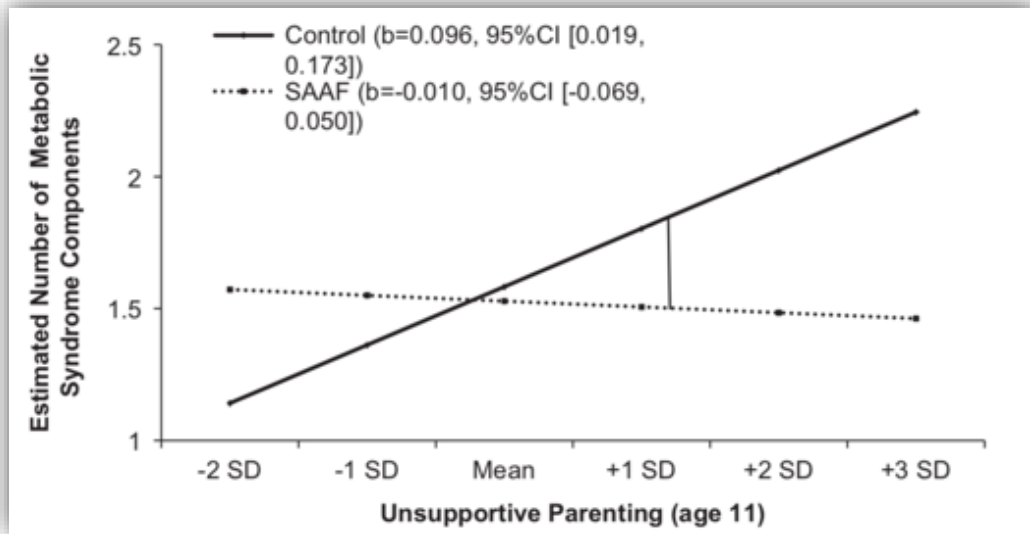


L Amygdala

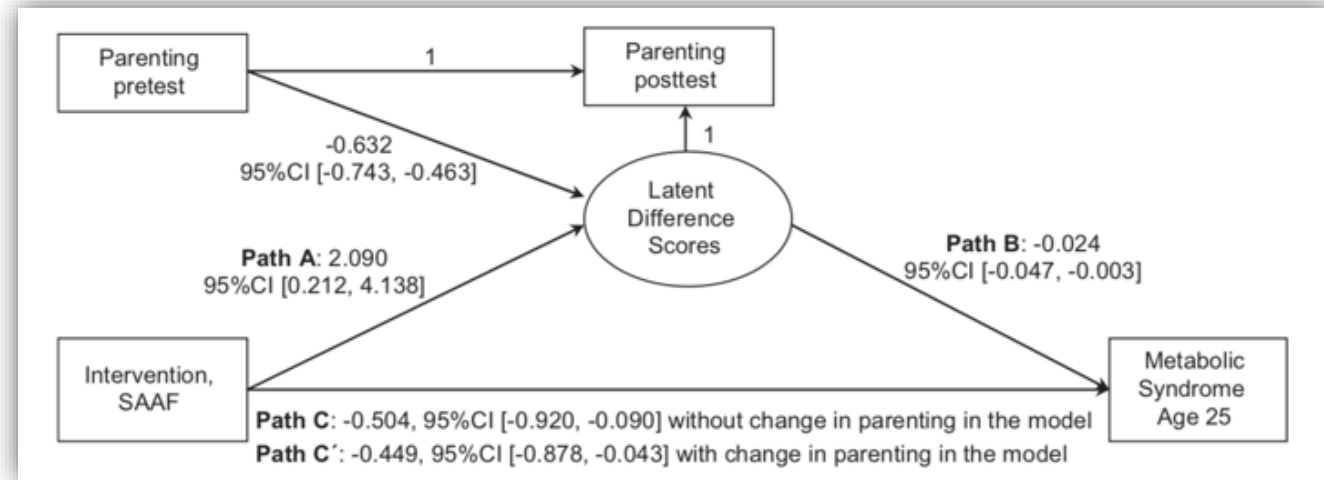


Metabolic Syndrome, 25 Years

Reduces MetS Signs



By Improving Parenting



- Abdominal adiposity
- Raised blood pressure
- Low HDL cholesterol
- Raised fasting glucose
- Raised triglycerides